

# Chapter 10

## Site Distribution and Settlement Pattern

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### Introduction

What do the settlement patterns of the valley indicate about the history of place use, social organization, and political behavior of the Purén domain and the *Estado*? Sites in the valley have complex and cumulative use histories. The occupational history of many locations appears to be discontinuous (~57%), but many domestic sites (~72%) were reoccupied or continuously occupied following Spanish intrusion into the region, including 12 of the 22 excavated sites (see Chapter 7). The regular reuse of formerly occupied settlements during this period may have been an important means by which displaced indigenous populations maintained access to and social claims over their ethnic homelands or perhaps new groups moved in and took over previously used places on the landscape. On the other hand, the intermittent use of several domestic sites is consistent with occupational instability throughout the period. Many of these settlements perhaps included individual or multiple households who had been residents at other locations. While social fluidity and residential mobility may have been long standing elements in the early Hispanic, and perhaps the later pre-Hispanic, Araucanian world, the tempo of mobility and co-residency and the constraints upon them are likely to have increased after AD 1550.

Based on our archaeological work in Purén and Lumaco and unsystematic, opportunistic survey in Pai Cavi and other places throughout the region (Dillehay 1976), mobility and changing co-residency appears to have been widespread and certainly would have entailed significant contestation, negotiation, and adjustment as households, individuals, and other scales of social action coalesced into new communities. As populations continued to decline in heavily conflicted areas, the

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loss of individuals, households, and the collapse of even larger scales of social organizations must have ramified through the web of interconnected social systems that made up the *Estado*, as the chroniclers and later historians discuss (e.g., Rosales [1674] 1989; Valdivia [1606] 1887; Bengoa 2003; Zavala 2008; Villalobos et. al. 1982). Furthermore, many of the sites recorded in the valley exhibit mound and defensive architecture. These architectural remains are well-suited to analyses of social structure, defined as an analytical conceptualization of the arrangements that linked the elements of social life together into a functioning, cohesive unit. Architectural and depositional patterns in these contexts are strongly influenced by the historically documented demographic variables as well as duration of occupation, periodicity of reoccupation, and post-occupational modification.

Flexible social mechanisms that mediated migration and integration of disparate populations would have been crucial to communities in the making of new settlements or their incorporation into established ones. Whether, continuously or discontinuously occupied, residential locales served as the raw material for social memory, new social arrangements, and place-making in the continuously transforming landscape. Residential abandonment and reoccupation does not necessarily denote a loss of place, but rather a reconfiguration of its role and historical associations. For the sixteenth and seventeenth century residents of Purén and Lumaco, their association with specific places may have shifted from collective to historical, as former residential locations became new landmarks in an ongoing cultural geography. The collective and historical identities invoked as expressions of community are often integrally tied to the history of place and may cross-cut communities defined by both coresidency. For archaeology, there is a considerable challenge in understanding the changing roles of these places within the sacred, domestic and political geographies of the valley (cf., Galloway 2002; Oatis 2004; Anschuetz et al. 2002; Billman and Feinman 1999).

With respect to the database, the sites shown on the settlement pattern maps for the cultural time periods do not represent all sites recorded during the project. Given the absence of diagnostic ceramics at several sites, particularly unexcavated fortresses, *kuel*, agricultural terraces, and cemeteries and the small number of diagnostic and nondiagnostic wares at other sites, we decided to include only sites with a minimum of 20 diagnostic sherds. Furthermore, by using sites that were primarily surface collected, shovel tested or excavated, means the database base is biased toward later occupations and ceramics because they are most likely to be exposed due to erosion and plowing (based on our subsurface probes, plowing at the majority of sites disturbed only the upper 15–20 cm.). Surface collection and shovel testing at most sites also implies a bias toward larger sites, particularly late sites. We believe this accounts for the low number of Pitrén or early pre-Hispanic Period sites (>20 diagnostic sherds) discussed below, and most of these were revealed through site excavation rather than surface survey. Those sites without the presence of ceramics could occasionally be affiliated with a cultural period based on the presence of defensive moats or oral traditions among informants.

Not presented in the discussion are the Archaic period sites, which are PU-23, PU-69, LU-69, PU-165, PU-166, and PU-220. With the exception of PU-165, which is located on a low terrace of the Purén and Lumaco River, all of these sites are situated on high hillcrests lines between 50 and 90 m above the valley floor.

Purén and Lumaco Valley Sites

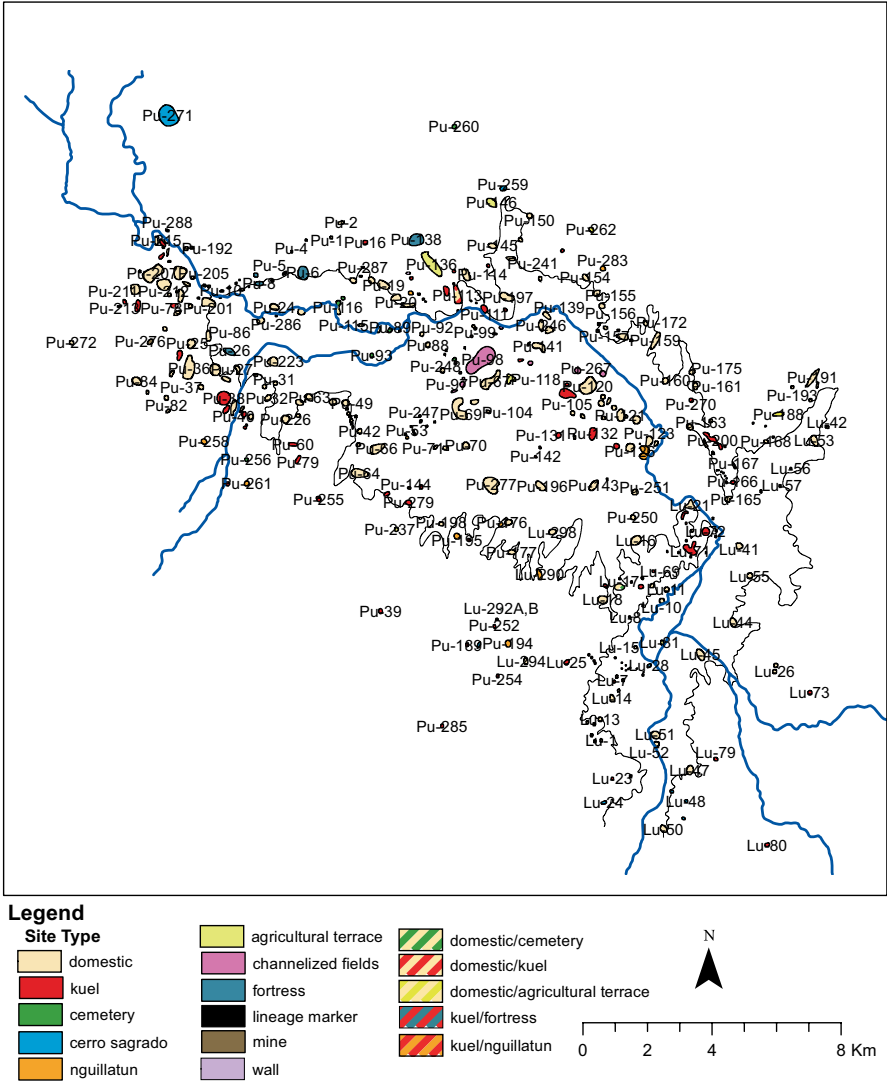


Fig. 10.1 Location map of all sites in the Purén and Lumaco Valley.

Settlement Patterns

From a strictly geographic perspective, the 376 recorded sites in the Purén and Lumaco Valley are primarily organized with regard to elevation, and secondarily with regard to proximity to rivers and streams (Dillehay 2007; Dillehay and Saavedra 2010). Several site types have been defined in the valley, ranging from domestic

locales, cemeteries and defensive places to *Cerros Sagrados* or sacred hilltops, ancient *nguillatun* fields, and *kuel* mounds (Fig. 10.1; see Dillehay 2007). When the various site types are taken into account, several patterns emerge. Domestic and cemetery sites tend to occur on or just above the valley floor at elevations ranging between 20 and 70 m above sea level (masl), while ceremonial sites such as *kuel*, *nguillatun*, and *Cerro Sagrado* are most commonly found at higher elevations of 50–125 masl where they are the more visible features on the landscape. When viewed through time, a trend of decreasing number and increasing size of sites is evident, especially in regard to domestic sites.

Discussed below are the distribution patterns for each site type and then a valley-wide comparison between these distributions through time. Survey methods and techniques are presented in Chapter 3.

## ***Domestic***

Domestic sites are mainly located on the terrace or the base of hills just above the valley floor, above 20 masl and sometimes at lower elevations along the many smaller tributaries of the Purén and Lumaco Rivers. There are two exceptions. One is a concentration of small domestic sites (<1 ha) located near the large agricultural fields situated between the Purén River and the Ipinco Creek (see discussion of agricultural concentrations below). The other is located on the banks of the Purén and Lumaco River.

A number of domestic sites are located on the valley floor directly along the banks of the Purén River. For reasons unknown at this time, this pattern does not occur as often along the Lumaco River. This could be attributed to more frequent flooding on the Lumaco side of the valley, or that the Lumaco Valley is narrower than the Purén Valley, and that the population was able to settle on the terraces above the river without being farther away from water, food, and transportation. Further evidence is that the section of the Purén River most densely occupied (near the present-day town of Purén in the western part of the valley) is the stretch that is farthest from the higher river terraces. In some places such as Tranaman and Quilaco this distance is up to 2 km between the river channel and the nearest terrace. These patterns seem to represent both, the late pre-Hispanic and early Hispanic periods.

Lastly, the majority of the large (>10 ha) to intermediate size (~2–10 ha) domestic sites are positioned along the lower elevated terraces and hills of the large *rehuekuel* complexes (Fig. 10.2), suggesting the relatively direct and easy access to these sacred places by the resident population. All of these sites date to the late pre-Hispanic to early Hispanic period and probably reflect the strong political and religious relationship between these sacred places and their domestic support population.

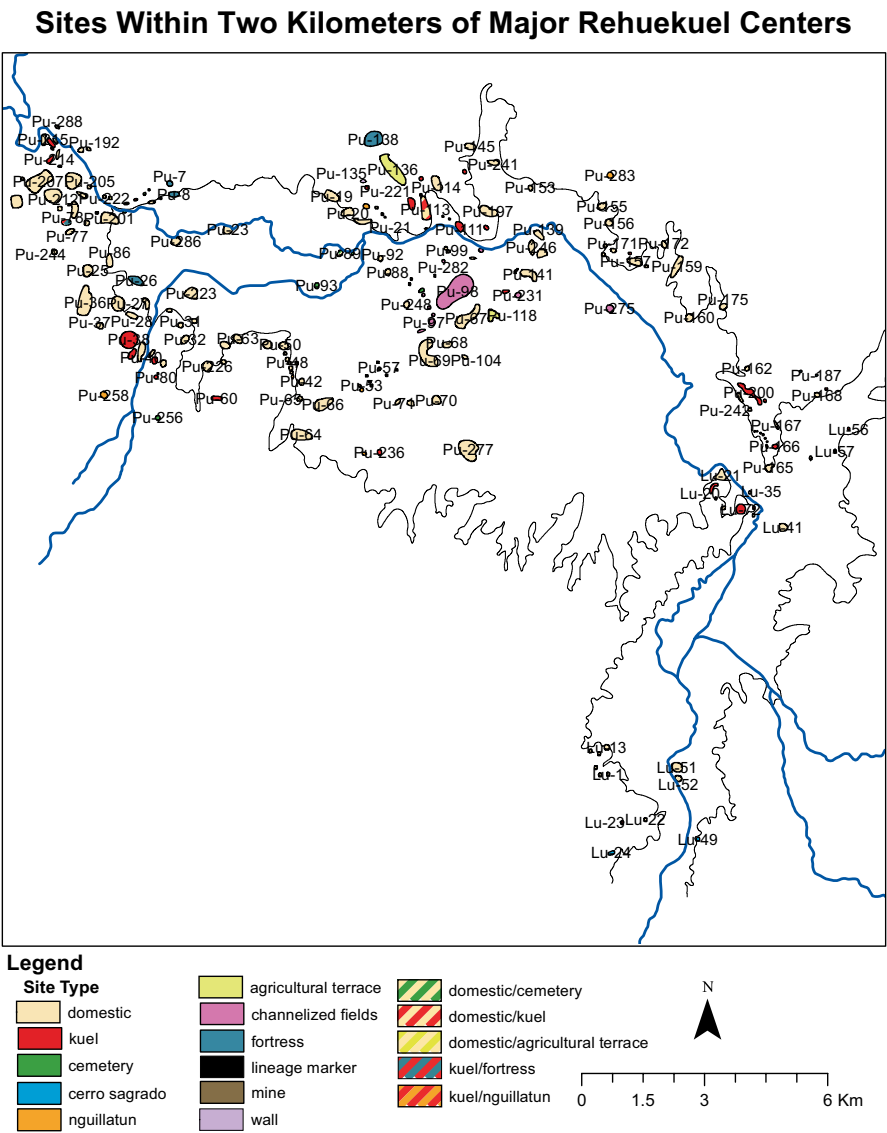


Fig. 10.2 All site types located within a 2 km radius of the major *rehuekuel* centers.

## Kuel

The majority of the *kuel* mounds are located on low, flat hilltops at the base of the steeper terrain, at least 50 masl. There are no *kuel* on the valley floor or, if there were any, they are not preserved today. This pattern includes the smaller cluster of low hills

in the middle of the valley near *Maicoyakuel* and El Valle, located roughly midway between the Purén and Lumaco sections of the river. There are a few exceptions where *kuel* are higher in the hills rather than at the lower elevation slopes, including sites PU-257, PU-254, and PU-253 in the low knolls overlooking the Purén Valley from the south and LU-73, LU-79, and LU-80 overlooking the Lumaco Valley from the east.

The position of the *kuel* at the center of several large domestic settlements and higher elevations is likely related to their use as political and religious nodes (Fig. 10.1). They are located in positions where they are more visible, especially from distances across the valley. Many *kuel* appear to be situated to create a line of sight connecting them with each of the sacred sites (Dillehay 2007). This is also what local elderly informants report today. Several *kuel* also appear to form a boundary within which the domestic sites lie, particularly along the southern limits of the survey area. They are located mainly at the edges of clusters of domestic sites, slightly to moderately higher upslope than the domestic sites. These places are *Loloncokuel*, *Hualoncokuel*, *Scheelkuel*, *Rapahueluel*, and *Maicoyakuel*, for instance. An exception is Butarincon along the western bank of the Lumaco River where the highest density of *kuel* are located in the study area; most of which are small and clustered together in small groups with domestic sites scattered immediately throughout.

This pattern appears across all three time periods from the EPH to the EH, suggesting that rather than indicating a change in *kuel* building practices over time, there may be a differentiation in the social and community patterns of *kuel* between those populations living in the Purén Valley and those in the Lumaco Valley. This also could be due to a difference in population size between the two valley sections. The domestic sites in the Purén River are larger and more numerous than those in the Lumaco River Valley, also suggesting a larger population.

With respect to the varying sizes of *kuel*, they are built ritually by descendants of the leaders either associated with or buried in them (Dillehay 1985, 1995, 1999, 2007). The size of individual *kuel* is dependent on the number of descendants the leader has and the length of time his successor is in power. If there was a smaller population in the Lumaco Valley, it should follow that the *kuel* are smaller, but this is not always the case. Another factor would be political stability. If the leadership in this valley was less stable than that of the Purén Valley, it also might imply that new *kuel* were built more frequently because the leadership turnover would be more frequent.

### ***Nguillatun Fields***

*Nguillatun* ceremonial sites follow the same pattern as the *kuel*, in that they are located on the low slopes at the base of steeper often isolated hills. Also like the *kuel*, *nguillatun* fields are surrounded by other sites (domestic, agricultural, cemetery, defensive). They generally are not found on the valley floor, with the exception of two sites, PU-124 and PU-125, located on the eastern edge of the terrace of low hills between the two river sections. These are also the only *nguillatun* sites that are centrally located.

## ***Cemeteries***

Cemetery sites are closer and nearer to the domestic sites than other sacred sites such as *kuel* and *nguillatun*. They are more identified along the Purén River than the Lumaco River. For the most part they are situated on the valley floor or on the first terrace above it at 15–30 masl and are primarily concentrated in the western end of the Purén valley, along the river. One exception is PU-260, which is located relatively far outside the main settlement area, to the north, along a small tributary. It is more than 2 km from the nearest neighboring site PU-259, a *Cerro Sagrado*. It is also in a steeper terrain and higher elevation than other cemetery sites at ~70 masl. There is at least one cemetery site associated with each large cluster of domestic sites. They are generally located at least 200 m from the nearest domestic site, with the exception of sites that are both domestic and cemetery sites.

Five sites are identified as both domestic and cemetery sites. The largest is LU-17 at 4.6 ha; it is located just above the valley floor on the western side of a low peninsula that runs to the west of and parallel to the Lumaco River. The other four domestic/cemetery sites are concentrated within a 2 km area in the central Purén Valley. These include PU-116, PU-89, PU-90, and PU-91. PU-116 is a medium-sized site at 4.5 ha, while the other three are relatively small, ranging from 0.4 to 1.5 ha.

## ***Cerros Sagrados***

*Cerros Sagrados* (sacred hills) sites are on the outskirts of the survey area high in the hills above the valley floor. Exceptions are PU-259 north of Guadaba Creek, just above the 80 masl valley floor elevation contour; and LU-49 on the southern end of the Lumaco River, just below the 50 masl valley floor elevation contour and in close proximity to sites LU-48 and LU-54 (two other *Cerros Sagrados*). Most of these sites are small (<2 ha) with the exception of PU-259 at 2.5 ha and the largest, PU-271, at 29 ha. PU-271 is isolated, situated more than 3 km to the northwest of the nearest site in the settlement area.

*Cerros Sagrados* appear to be arranged in almost regular pattern approximately at 10 km intervals surrounding the valley floor. PU-271 is located at the northwest end of the valley. Approximately 10 km southeast to east is PU-259. PU-186 and PU-187 cluster about 10 km farther southeast. About 12 km south to southwest is a cluster of three sacred hills (LU-49, LU-48, LU-54), with LU-24 located across the river from these three. PU-189 is located 8 km to the east. At this point, the pattern breaks down and it is another ~20 km northwest back to PU-271. However, approximately 10 km east and parallel to the Purén River, there is a hilltop near PU-257 (a *kuel*) and PU-258 (a *nguillatun* field). These two sites also may be *Cerros Sagrados*. They fit the pattern, in that they are 10 km from PU-189 and from PU-271, respectively, and would complete the “circle” of *Cerros Sagrados* surrounding the valley.

## ***Fortresses***

There are several fortress sites on the slopes above and to the north of the Purén River. Three of these, PU-7, PU-8, and PU-73, are located within 1 km area of each other and are situated on a large tributary running parallel to the river. In addition, there is PU-6, a large fort (10.5 ha) about 1 km to the east of these clustered forts and PU-138 (13.2 ha) situated approximately 4.5 km east of this cluster. Also, there is the reconstructed late nineteenth century fort on the hill situated in the eastern part of the modern day town of Purén (Guarda 1984; Saavedra 2000).

Also in the western portion of the Purén Valley is PU-216, probably a Spanish fort and also identified as a *kuel*, located on the slopes above and to the west of the headwaters of the Purén River. PU-26 may be a contact period fort, located on the valley floor to the south of the Purén River at the confluence of two small tributaries. There is one fortress identified on the Lumaco side of the valley, LU-28, and it is placed on a hilltop at the southern confluence of two branches of the Lumaco River. This is also likely a Spanish and later a Chilean fort, given the surface artifacts recovered there. The concentration of sites in the northwestern portion of the Purén Valley as well as the absence of forts in most other areas of the valley suggests that the Spanish primarily entered the valley from the northwest perhaps through the pass from Purén to Contulmo to the coast or from the headwaters of the Elicura River to the northwest.

## ***Agricultural Fields***

Channelized fields are located on the valley floor, whereas, terraced fields are at higher elevations on hill slopes. The terraced fields tend to be on the lower, less steep slopes, not high in the hills. Exceptions are LU-81, an agricultural terrace situated on the valley floor between two branches of the Lumaco River, and PU-231, a small, channelized field located at ~60 masl on a raised terrace overlooking the Ipinco Creek from the south.

The channelized fields are concentrated in the central Purén River Valley, mostly between the Purén River and the Ipinco and Guadaba creeks; however, there are two medium-sized (~20–30 ha) channelized fields to the east of this area, PU-275 and PU-267. Other than these two fields, all of the channelized sites are categorized as small (<2 ha). PU-98 is the largest site identified in the survey area at 41 ha. The location of all of these sites on the valley floor between two waterways is likely due to the specific environmental conditions of the *ciénega* on the valley floor (see Chapter 6) required to create and maintain these specialized fields.

The agricultural terraces are more widely distributed. There are two terraced fields near this central agricultural concentration: PU-118 and PU-133, both in the low hills between the two rivers. There are also small terraced fields located in various places around the valleys. These include PU-13, located in the northwestern headwaters of the Purén River near a large concentration of domestic sites; PU-237



in the south-central portion of the valley; LU-81 in the southern Lumaco Valley; PU-188, a terrace/domestic site, in the far eastern portion of the survey area overlooking a tributary to the Lumaco; PU-262 in the northeastern portion of the Purén Valley, and PU-146 and PU-136 in the hills to the north of the Purén Valley.

## Site Concentrations

### *Agricultural Concentrations*

The South-Central Area: South of the Purén River and the Ipinco Creek there is a concentration of various types of sites. Eight of these sites have been identified as channelized fields, one of which, PU-98, is the largest site in the valley at ~41 ha. In addition, there are eight small domestic sites and one small cemetery nearby. In some cases, these sites are more than a kilometer from the nearest tributary. The size of the domestic sites, their distance from water, and their proximity to the large agricultural field may indicate that they were temporary residences used by those working in the fields. Another possibility is that only remnants of sites remain in this area because, due to its position between two waterways, it is subject to flooding and to sites covered by sediments. This could explain the number of small domestic sites, though not their distance from a water source.

Only two of the channelized fields in this concentration yielded diagnostic ceramic types: PU-98 and PU-81. Both are dated to the late pre-Hispanic period. Only two of the ten small domestic sites are included in this time period: PU-92 and PU-96. There are, however, two large domestic sites just across Ipinco Creek to the south on a low hilly terrace: PU-67 (14 ha) and PU-69 (17.8 ha). These large domestic sites are more likely to have supported the large population that would have been required to maintain this large agricultural field. Also on this hilly terrace is the only terraced field included in the late pre-Hispanic and early Hispanic periods. Possibly this area between the two waterways was an agricultural center from which food was distributed to the rest of the valley during these periods.

The Northwest Area: Another concentration of sites is located in the northwestern headwaters of the Purén River. Many of these sites are large. Three of the 25 domestic sites in this concentration are larger than 10 ha (PU-212, PU-205, and PU-207 at slightly over 20 ha). Also included in this concentration are eight *kuel* sites (PU-76, PU-75, PU-74, PU-204, PU-214, PU-210, PU-213, and PU-216). PU-216 is both a *kuel* and a fortress, likely an early Spanish fortress. Other fortresses in this concentration include PU-73, PU-7, and PU-8. These three fortresses are concentrated within about 1 km area of each other and are located along a large tributary running parallel to the Purén River. There is also one agricultural terrace (PU-13) and two small cemeteries (PU-11 and PU-15). The field and two cemeteries are relatively small given the large size of the domestic sites in the area, perhaps indicating that the sites were not contemporaneous.

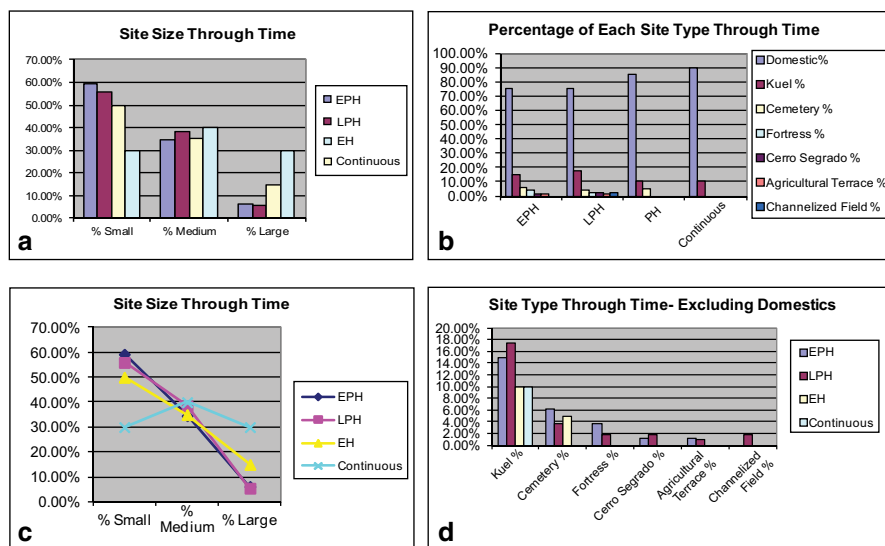
The temporal data that is available, places two small domestic sites and one fortress in this northwest concentration during the earliest time period. The domestic sites, PU-51 and PU-10, are near the main river channel, rather than farther into the headwaters and both are in close proximity to the fortress, PU-8. PU-10 is only 300 m west of the fortress. The same sites are found in this area during the late pre-Hispanic period, with the addition of only one small domestic site, PU-192. This site is located farther up the headwaters, slightly more than 2 km to the northwest of the fortress, possibly an indication of a decreased need for protection during a period of peace. There are no identified sites located in this area during the early Hispanic period. It also is possible the area was abandoned, though the presence of a Spanish fort (PU-216) belies this apparent lack of settlement during this time. It seems more likely that the lack of sites in this area during this time period is more related to the lack of diagnostic ceramic data available on most of the sites, although there may have been occasional abandonment due to armed conflict.

**The Southwest Area:** Another concentration of sites is located south of the Purén River, in the southwest portion of the valley. There are two large sites here, one of which is PU-38, a large *kuel*. This *kuel* covers 13.8 ha, and is located in the southwestern portion of the Purén Valley on the terrace just above the valley floor. It is approximately 1 km to the southeast of the other large site in this concentration, PU-36, and is one of the largest domestic sites in the survey area at 19 ha. Also in this concentration, are five small to medium *kuel*, most of which are concentrated around PU-38, a large *kuel*, PU-26, an early Hispanic period fortress, PU-276, the only mine identified in the survey area, and PU-258, a *nguillatun* site.

Temporal comparison maps show that PU-38 and PU-36 are occupied through all three time periods. During these periods, a concentration of sites can be seen in this location, all centered around these two sites. These two sites may reflect one possible centralized area of occupation that survived through all periods.

**The Central Area:** Another concentration of sites is centrally located on a small hilly area west of the Lumaco River and south of the confluence of the Purén and Lumaco Rivers. There is an elevated, hilly terrace in Huitranlebu with 29 sites on it, particularly a cluster of 17 domestic sites on the east side of the hills, most of which are situated along the slope overlooking the wetlands toward the Lumaco River. These sites are small to medium in size, with one large site, PU-120 at 19 ha. Also included in this concentration is one large *kuel*, PU-105, and seven small to medium-sized *kuel*. There are two channelized fields, PU-267 and PU-275, on the valley floor at the base of the slope and one terraced field, PU-133 at 65 masl. Two *lof* or stone lineage markers (PU-240, PU-274) and two *nguillatun* fields (PU-124, PU-125) are included in this concentration.

PU-120, a large domestic site, and PU-122 are the only sites in this concentration that were occupied through all time periods. One *kuel*, PU-132, is present in from the late pre-Hispanic to the early Hispanic period. This *kuel* is located on the highest point of this hilly terrace at 92 masl. During the earliest time period this *kuel* overlooked the eight domestic sites arranged along the northeast side of the terrace along the Lumaco River. Other than the two continuously occupied sites, there are six small domestic sites in this concentration during the late pre-Hispanic

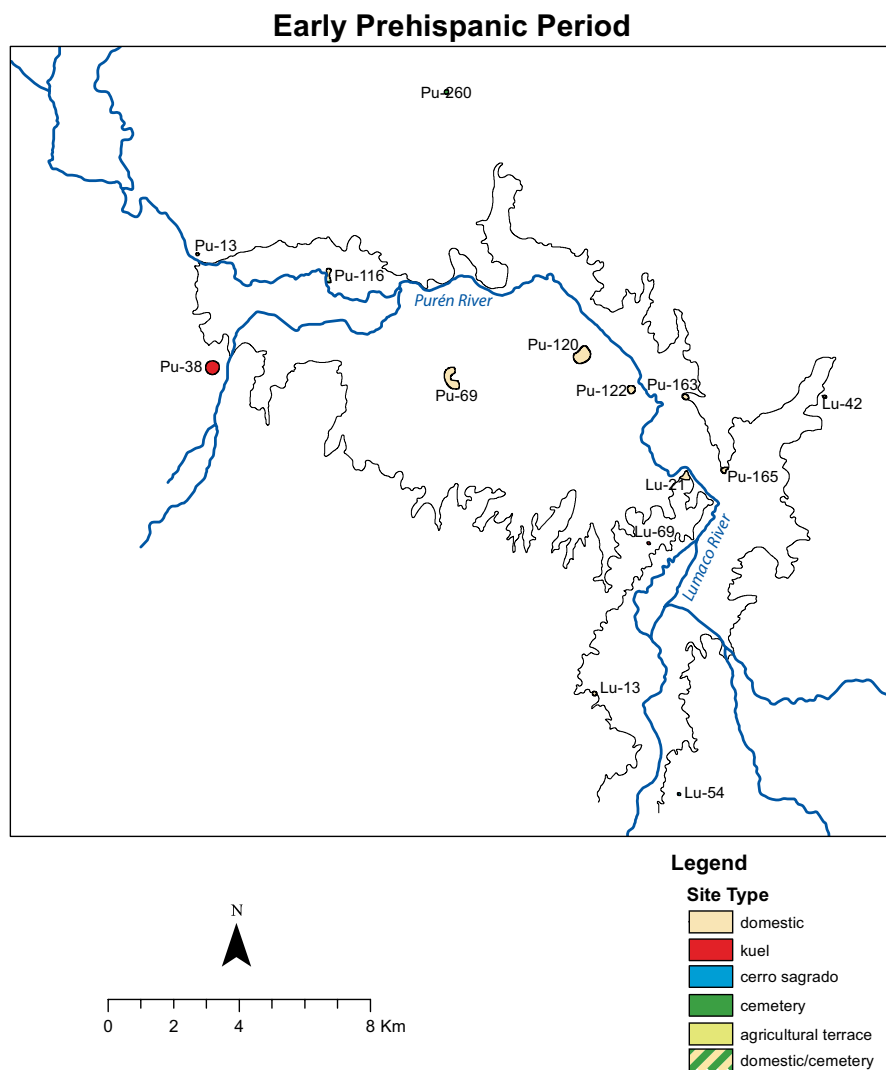


**Fig. 10.3 a-d** Frequencies of sizes of different types of sites through time.

period. During the early Hispanic period there are fewer domestic sites, but they are slightly larger, with the one large site, three medium sites and three small ones. The early Hispanic period has the least amount of sites, with only the two continuously occupied sites and one other small domestic site, PU-249.

## Temporal Comparisons

A trend of increasing site size can be seen through time for all categories except cemeteries. Their horizontal extent could not be accurately estimated because we did not place shovel probes and test pits in them. The early pre-Hispanic period has the highest percentage of small sites (<2 ha, Fig. 10.3 a-c), the late pre-Hispanic period has the highest percentage of medium sized sites (between 2 and 10 ha), and the early Hispanic period has the highest percentage of large sites (>10 ha). Although, the late pre-Hispanic period has the greatest number of sites, the overall pattern indicates that through time the settlement shifted from a large number of smaller sites, distributed throughout the valley to a small number of larger sites concentrated in a few key locations in the valleys.

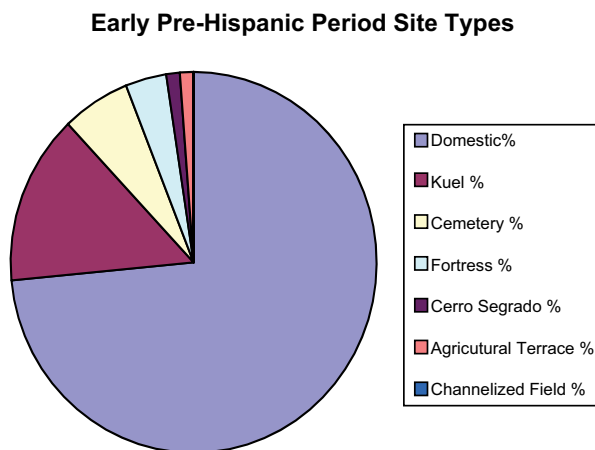


**Fig. 10.4** Location map of early pre-Hispanic period sites.

### ***Early Pre-Hispanic Period (EPH, ~AD 400–1000)***

The earliest time period, primarily associated with the Pitrén ceramic style, presents the highest percentage of small sites, indicating that the population was widely dispersed in small settlements scattered throughout the valley (Figs. 10.4 and 10.5). These smaller sites maintain some of the same concentration patterns that are observed in the overview presented above, particularly the southeastern concentration

**Fig. 10.5** Frequency chart of site types for the early pre-Hispanic Period.



and the central concentration. There are a variety of site types present during this time period as well.

For unknown reasons, this period has the highest percentage of cemetery sites, two of which are both domestic and cemetery sites, PU-116 and LU-17. This may indicate a difference in burial practices between the three time periods.

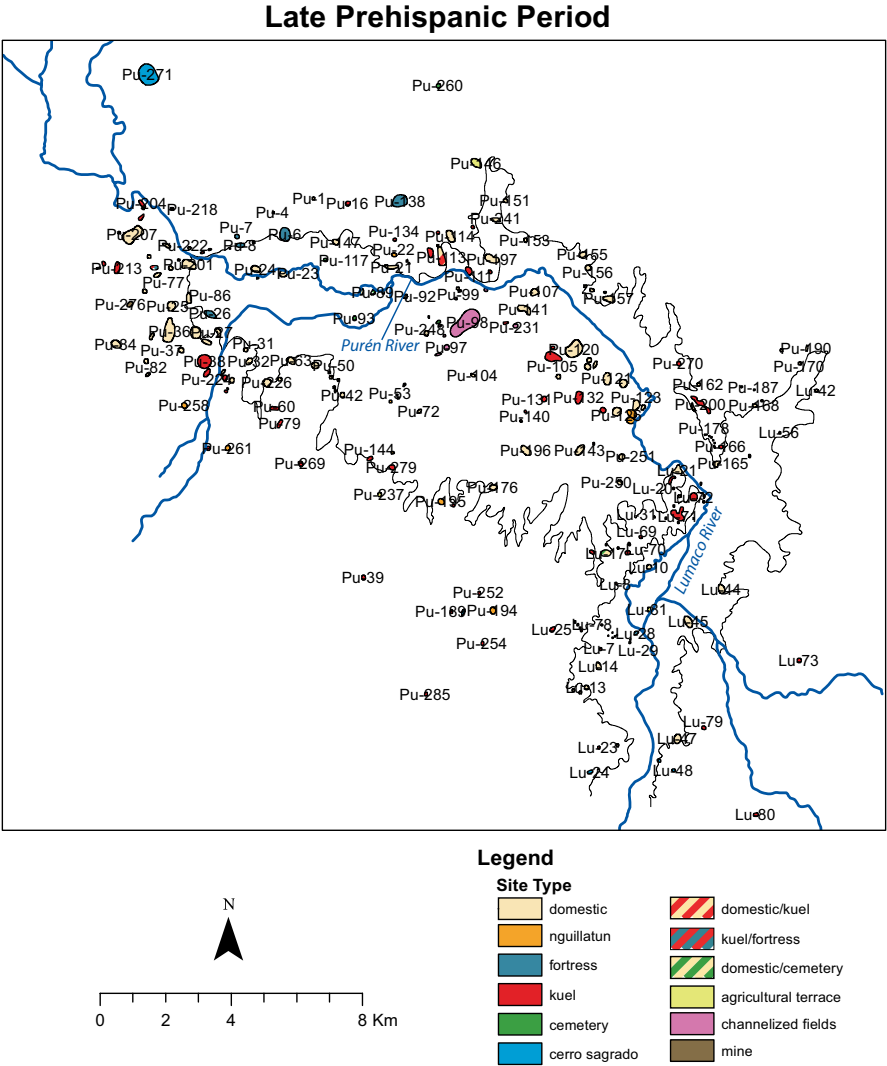
There is only one agricultural site present during this time period. PU-127, a terrace, is relatively small at 0.51 ha and is located in the central region of the Purén Valley, somewhat isolated with only one domestic site nearby, PU-107. There are no channelized fields included in this time period.

There are 12 *kuel* present during this period. The two large continuously occupied *kuel*, PU-36 and PU-132, are present during this early period; one at each end of the Purén Valley. Other than these two sites, most *kuel* of the early time period are small (<2 m high and 8 m in diameter) and located in the low hills above the west bank of the Lumaco River. There are seven *kuel* in this area and one across the river on the east bank. In addition, there is PU-34, a medium sized *kuel* 0.5 km southeast of PU-36 and PU-112, a small site to the north along the Purén River.

### ***Late Pre-Hispanic Period (LPH, ~AD 1000–1550)***

This intermediate period, primarily associated with the El Vergel ceramic style, has the largest number sites and the highest percentage of medium sized sites (Figs. 10.6 and 10.7). This implies an increase in the size of sites over time rather than a decrease number of sites. This increase may be related to the construction of more *kuel*.

Of the 109 sites included in this period, 17% are *kuel*. This is the highest percentage of *kuel* of any period. There are 13 small *kuel*, mostly scattered along the west

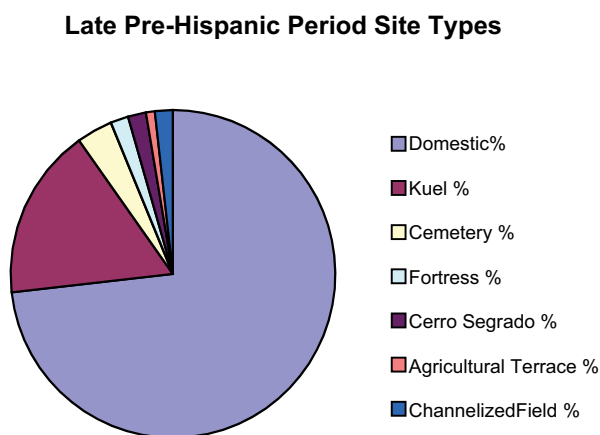


**Fig. 10.6** Location map of late pre-Hispanic period sites.

bank of the Lumaco Valley, 4 medium *kuel* (2–5 m high and 8–15 m in diameter), mostly in the Purén Valley, and 1 large *kuel* (>5 m high and 15 in diameter), PU-38. One medium-sized *kuel* is a combined domestic and *kuel* site which is located north of the Purén River.

The percentage of domestic sites during this period remain about the same, 75 % and 75.2 %, from the EPH to the LPH, respectively. Many domestic sites of the early period are also occupied during this period, with the addition of 20 new sites. Most of these are small to medium and are fairly evenly distributed throughout the

**Fig. 10.7** Frequency chart of site types for the late pre-Hispanic Period.

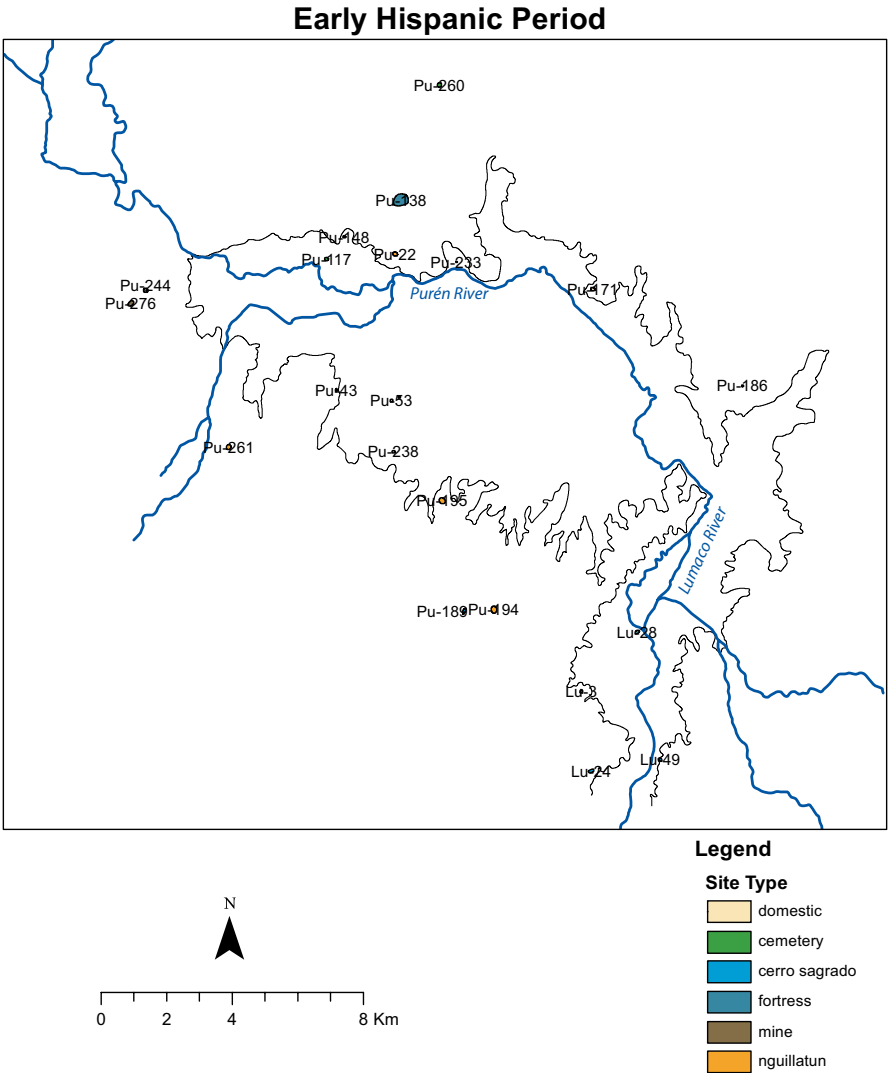


valley. There is one large domestic site that is unique to the intermediate period, PU-67 (14 ha); it is located in the central hills south of Ipinco Creek, across the creek from the large channelized field, PU-98.

The LPH also has the largest number of agricultural fields, and is the only period clearly associated with channelized fields. While there is only one terraced field in both the early and intermediate periods, terraces in the intermediate period are larger, at 5.2 ha, than ones in the early period, at 0.51 ha. In addition, the intermediate period has channelized fields, PU-98 and PU-81, both located in the central valley floor between the Purén River and the Ipinco Creek. The appearance of the fields perhaps indicates a change in agricultural technology to the valley floor, perhaps to accommodate a larger population. The size of the fields and total area covered by agricultural cultivation, both terraced and channelized fields, increased by a large margin (from half a hectare to more than 47 ha), indicating an increased dependence on agriculture as a food source during this time.

Two probable late pre-Hispanic fortresses are present during this period: PU-8 and PU-26. They are located on the west end of the Purén Valley. PU-6, a large fortress, is located further to the east along the north bank of the Purén River.

There appear to be fewer cemeteries during the intermediate period. There are four cemeteries, two of which are combined domestic and cemetery sites. One of the domestic-cemetery sites, LU-17, is also present in the early time period. The other domestic-cemetery site is PU-89, located north of the Purén River, about 1.5 km to the east of PU-116, the other domestic cemetery present in the early period. Another cemetery that is included in both the early and intermediate periods is PU-260, located 3.5 km north of the nearest site.



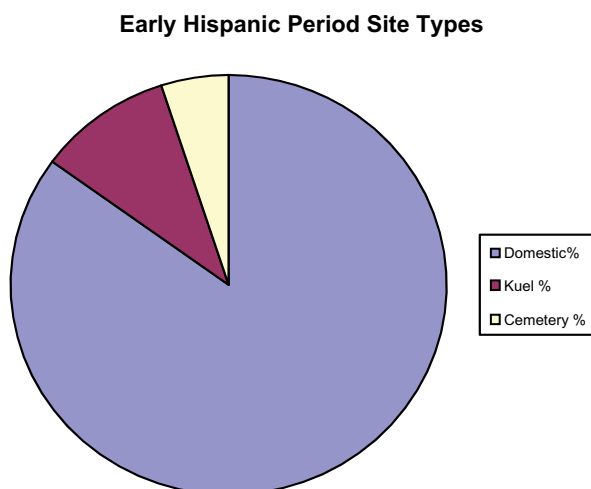
**Fig. 10.8** Location map of early Hispanic period sites.

***Early Hispanic Period (EH, ~AD 1550–1700)***

The late period includes a smaller number of sites, with only 20 sites total, but it has the highest percentage of large sites (Figs. 10.8 and 10.9). This suggests that near contact era, the population moved from smaller scattered settlements into larger centralized settlements located in key positions throughout the two valleys. There also is less variety of site types in this period, with only 17 domestic sites, 2 *kuel* (with evidence of Spanish materials in them or radiocarbon dates of this period)



**Fig. 10.9** Frequency chart of site types for the early Hispanic period.



and 1 cemetery. This also could be indicative of conflict in the valley during this later period, forcing people into centralized settlements. There is also a noticeable absence of agricultural fields, fortresses, and ceremonial sites (*nguillatun* and *Cerro Sagrados*), although the latter two sites were probably continuously utilized.

One of the key positions occupied during the late pre-Hispanic period is the southeastern portion of the Purén Valley, centered around PU-36 and PU-38 (see discussion of Southeast Concentration), which also includes two smaller sites, PU-35 and PU-37. These latter two are important locations in the headwaters of the Boyeco Creek during the EHP as well. PU-36 is one of only two *kuel* present during this period that contains Spanish materials.

Another key position is along the Purén River as it changes course from west-east to northwest-southeast. Along this 5 km stretch of the river valley, there are six domestic sites, including PU-120, PU-122 and PU-249 on the terrace along the southwestern bank and PU-157, PU-171, and PU-264 on the northeastern bank. This is an important location, given its proximity to the confluence of the Purén and Lumaco Rivers.

The EHP also has the highest percentage of fortress sites for the three time periods, indicating that the Spanish shifted their defensive positions repeatedly. This interpretation is supported by the chronicles that describe the numerous times in which the Spanish established a fortress, were defeated by the Araucanians, and then forced to leave the valley (see Chapter 3). All three early fortress sites, PU-6, PU-8, and PU-26, are located on the western edge of the Purén Valley near the headwaters of the river, perhaps representing the earliest Spanish foothold in the valley. Other fortresses exist in the valley but we are not certain if they date to the Spanish era or to the Chilean Republic period.

There are a few small domestic sites scattered throughout the valley during this late period. They are primarily small to medium sites, with the exception of LU-38, a small *kuel* on the slopes above the southern portion of the Lumaco River, and LU-

29, a small cemetery located on a low rise in the Lumaco Valley. These two sites are within 2 km of each other as well as LU-13, a small domestic site.

### ***Continuous Occupation***

Of the 140 or 376 total sites that are included in the type series maps, there are 10 that show clear evidence of occupation through all three periods. These continuously occupied sites are fairly evenly distributed across the size categories, with three small (<2 ha), four medium (2 ha), and three large (>8 ha) sites. These sites do not represent much diversity in site type. All are domestic with one exception: PU-38, a *kuel*. This *kuel* and its associated *ñichi* platform and ceremonial area is 13.8 ha, and is located in the southwestern portion of the Purén Valley on the terrace above the valley floor. It is approximately 1 km southeast of a large continuously occupied domestic site, PU-36. These two sites may reflect one centralized area of occupation that survived through all time periods, with the population breaking off and coming back together as environmental, political, or social conditions dictated. The largest continuously occupied site, at 19.25 ha, is PU-120, located in the northern Lumaco Valley. This site overlooks the river from a low hilly terrace to the west.

All continuously occupied sites follow the general settlement pattern described earlier, in that they are located on the valley floor or, more commonly, on the terrace above the valley floor. The continuously occupied sites in the Purén Valley are situated south of the river and are large to medium in size. The only exception is PU-35, a small site at 1.7 ha. However, it is located approximately 285 m west of PU-36 across a small tributary and could possibly be an extension of PU-36. The Lumaco River is less densely occupied across all time periods with more small to medium sites; an exception is PU-12. LU-13 is a small site at 1.36 ha, located in the southern Lumaco Valley more than 7 km from LU-35. Overall, the distribution of continuously occupied sites indicates centralized occupation areas, concentrated in the northern part of the study area, with scattered, smaller, long-term occupation sites along the Lumaco River.

### **Discussion**

The combined settlement and ceramic patterns identified as a result of the analyses discussed provide the information needed to interpret how the Purén and Lumaco Valley population reconstructed social, political, and economic relationships during the late pre-Hispanic Period and especially the early Hispanic Period. The data suggest concentrations of settlements in places near defensive sites and large ceremonial complexes. Also noted is the larger size of domestic sites during the early Hispanic period (see Chapters 2 and 4). This study is just a beginning and much more archival and archaeological research is required to confirm many of these interpretations and to ask new questions of the data.

Lastly, Chapters 6 and 14 provide evidence that the climate and environment of the valley during the period under study was relatively similar to the cool temperate rainforest that exist today. These studies also suggest that the valley was characterized by cleared spaces between forest patches, revealing the intense and long-term modification of the environment by humans over the past several millennia. The results of these data correspond well with the chroniclers who also state that the valley had many *llanuras* or grasslands without forest (see Chapters 3 and 6).

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